

appeared as if this inferiority was due to the difference of colour. At times both equally well seen. Spectrum very striking and hardly, if at all, different since former observation. Very strongly pronounced red line. Bright band suspected in yellow. One, perhaps two, seen in green.

1901 April 10. Sky partly clear. *Nova* much decreased in brightness, below 32 *Persei*. Just on the verge of visibility with naked eye; only to be seen in glimpses.

1901 April 11. Partly clear at first, then cloudy. *Nova* not very much fainter than last night. Still visible in glimpses, yet with less certainty. Magnitude decidedly below 6.

Further Observations of the New Star in Perseus (4).

By A. Stanley Williams.

During the month of May the position of *Nova Persei* was very unfavourable, and the observations were necessarily made with the star at a low altitude and on a bright sky. Notwithstanding, however, these unfavourable conditions, the estimates of the brightness of the *Nova* have been mostly quite satisfactory owing to fine weather and the generally clear sky even at a very low altitude.

The following estimates of the brightness of the new star were all made with a power of 35 on the $2\frac{3}{4}$ -inch refractor; and in no case, it may be mentioned, was there any uncertainty with regard to the identity of the object or of the comparison stars. No correction for difference of atmospheric absorption has been applied to the provisional magnitudes in the last column, although this correction would probably be quite sensible in the case of the evening observations, at any rate as regards the comparisons with 36 *Persei*. It is probable, therefore, that the provisional magnitudes from the evening observations may be slightly too low, though the influence of the peculiar colour of the star in possibly modifying the effects of absorption perhaps requires to be taken into consideration. In the morning observations the *Nova* and the two comparison stars 36 *Persei* and α (B.D. +44°, 734) were all nearly at the same altitude, and should have been about equally affected by absorption. In some cases, where comparisons were made in the evening at short intervals, the separate results are given, as they may be of assistance with regard to this question of absorption. The progressive diminution in brightness shown by the last three observations of May 22 may well have been due to the effect of increased absorption as the star approached the horizon. On May 23 we have a similar change.

June 1901.

of the New Star in Perseus (4).

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Date. 1901.	G.M.T. h m	Observations.	Provisional Magnitude.
May 12	9 50	Nova = $a - 2$ ($b - 12$)	6.3
13	9 19	36 Persei + 0.3, $a - 11$	5.4
14	9 21	36 Persei + 8, $a - 2.7$	6.2
15	9 30	$a + 1$ ($b - 9$)	6.6
17	9 10	36 Persei + 4, $a - 7$	5.8
	9 45	36 Persei + 5, $a - 6$	5.9
18	9 30	36 Persei + 4, $a - 7$	5.8
	9 50	36 Persei + 5, $a - 6$	5.9
20	9 10	36 Persei + 8, $a - 3$	6.2
	9 25	36 Persei + 9, $a - 2$, $b - 9$	6.2
	9 35	36 Persei + 11, = a , $b - 9$	6.3
21	9 15	36 Persei + 9, $a - 2$	6.3
	9 25	36 Persei + 10, $a - 2$, $b - 9$	6.2
	9 30	36 Persei + 11, $a - 1$, $b - 9$	6.3
	9 40	36 Persei + 10, = a , $b - 10$	6.3
22	9 20	36 Persei + 1, $a - 11$	5.45
	9 35	36 Persei - 5	4.9
	9 40	36 Persei - 4	5.0
	9 45	36 Persei - 2	5.2
23	9 20	36 Persei + 6, $a - 5$	6.0
	9 36	36 Persei + 9, $a - 3$	6.25
	9 40	36 Persei + 9, $a - 2$	6.3
24	9 30	$a - 5$	6.0
	9 35	36 Persei + 8, $a - 3$	6.2
	9 36	36 Persei + 8, $a - 3$	6.2
	9 38	36 Persei + 8, $a - 3$	6.2
June 6	13 50	36 Persei + 8.7, $a - 5.7$	6.1
8	13 46	36 Persei - 1 ($a - 15$)	5.3
10	14 19	36 Persei + 12.5, $a - 2$	6.45

Notes.

May 12, very clear. May 13, very clear; mean of 3 observations between 9^h 8^m and 9^h 30^m. May 14, exceedingly clear; mean of 3 observations between 9^h 10^m and 9^h 35^m. May 15, not very clear. May 17, clear intervals between clouds. May 18, a little hazy. May 20 and 21, very clear. May 22, very clear; star too bright for proper comparison with a . May 23, very clear. May 24, considerable thin cirrus cloud about, but a narrow strip of sky just above the horizon seemed perfectly clear, and it is believed the estimates were not affected by the cloud. June 6, hazy; mean of 3 observations between 13^h 40^m and 14^h 0^m. June 8, very clear; mean of 3 observations between 13^h 5^m and 14^h 17^m. June 10, considerable thin cloud, but the observations were certainly not affected by this; mean of 4 sets of comparisons between 14^h 7^m and 14^h 30^m. The star designated b is BD. + 43°, 730.

Although the fluctuations in brightness have continued, the star does not seem to have varied to the same extent as formerly. The observations show that the star was more or less bright on the following dates: May 13, 17-18 (slight), 22, and June 8. Apart from these temporary or periodical fluctuations, the *Nova* seems to have remained almost stationary during the past month.

Observations of colour have been practically impossible lately owing to the low altitude, but on May 13 the star seemed strongly reddish, and on May 14 it was noted as being evidently a very deep red. On May 22, when the star was bright, it appeared as a flaming bright star of a pronounced red colour, even at 9^h 45^m, when the altitude was very low. On June 8, at 13^h 55^m, the colour seemed to be orange.

1901 June 12.

Secular Variation in the Period of R Carinæ.

By Alexander W. Roberts, D.Sc.

The periods of several of the Southern Long Period Variables seem subject to secular variation, but with the exception of *R Carinæ* the observations are either too discontinuous or too meagre to afford even a remote idea of the amount and nature of the variation.

With regard to *R Carinæ* sufficient observations have, I think, accumulated during the past twenty years to indicate the salient characteristics of the irregularities which affect its variation.

The first observation of which we have any record is that made by Lacaille on 1752 March 3. As Lacaille estimated it as of the seventh magnitude, it could not then have been far from its maximum brightness. This observation is therefore of importance as fixing within certain limits the period of the variable.

In 1867 two meridian observations of *R Carinæ* were made very near a maximum phase by Ellery at Melbourne.

The two observations are:—

1867 March 31	Magnitude 6.5
„ April 3	„ 6.0

This, taking the average rate and extent of variation of *R Carinæ*, would mean a maximum on or about 1867 April 25.

The observations made by Brisbane and Stone are not of value in any investigation dealing with the light changes of *R Carinæ*, as position rather than brightness was the purpose of their observations. It is indeed possible that Stone simply copied Lacaille's magnitude into his observation book.

The discovery of the variation of *R Carinæ* was made by Gould in 1871, and during this and the following three years continuous observations were made of it at Cordoba.